Marked-up original

TITLE OF INVENTION

HOT DRINK CUP LID WITH COOLING AIR-FLOW invented by Constance Linda Pitts, United States citizen, residing at 5748 Clark Road, West Manchester, Ohio 45382.

CROSS-REFERENCE TO RELATED APPLICATIONS

Not Applicable.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

Not Applicable.

REFERENCE TO A MICROFICHE APPENDIX

Not Applicable.

BACKGROUND OF THE INVENTION

This invention is in the field of cup lids for hot beverages and is designed to improve the safety and enjoyment when drinking very hot liquids, such as hot coffee. This new and unique utility invention for an article of manufacture is a tremendous improvement over prior art.

This invention is uniquely different from prior art.

For example U.S. Patent No. US 6,571,973 B1 to Tripsianes (June 2003) reveals a cup lid with a cooling spillover chamber. This cooling method is limited in its cooling ability and is awkward during use as the liquid is transferred to the spillover chamber and then to the sipping opening. Further, this cup lid with cooling chamber is costly to manufacture and cumbersome to use.

Another U.S. Patent No. 6,176,390 to Kemp (January 2001) discloses a cup lid with a cooling reservoir. This cooling method is awkward to use as the liquid is transferred to the cooling reservoir and then to the drinking opening. This lid would be costly to manufacture and cumbersome to use.

Another U.S. Patent No. US 6,578,726 B1 to Schaefer (June 2003) describes a cup lid made in one or two pieces. The aroma vent holes are not placed to create a cooling action and only allow the aroma to escape. Therefore the hot liquid is not cooled by this method. Further, this cup lid with aroma vent holes is costly to manufacture.

Further U.S. Patent Numbers referenced listed below do not address the need for cooling hot liquid beverages when being sipped. U.S. Patent Documents Referenced:

4,412,629 TO Dart & Dart (1983)
4,756,440 to Gartner (1988)
4,953,743 to Dart & Darras (1990)
4,915,250 to Hayes (1990)
4,899,902 to DeMars (1990)
4,949,865 to Turner (1990)
5,111,961 to Van Melle (1992)
5,699,927 to Lane & Williams (1997)
5,613,619 to Van Melle (1997)
5,839,601 to Van Melle (1998)
5,706,972 to Sousa (1998)
5,799,814 to Schaefer & Pendergrass (1998)
6,089,397 to Van Melle (2000)
6,095,033 to Melton (2000)
D429,443 to D'Alessio (2000)
6,305,571 to Chu (2001)

6,612,456 B1 to Hundley & Quatmann (2003)
6,644,490 B2 to Clarke (2003)
6,659,302 B1 to Lin (2003)
6,679,397 B2 to Smith, et al (2004)
D485,758 to Clark, et al (2004)

BRIEF SUMMARY OF THE INVENTION

This invention was developed to answer an urgent need by the purveyors and consumers of hot liquid such as hot coffee, hot tea, hot chocolate, etc., when drinking from a cup such as that offered at fast food restaurants, carry-outs, and service mini-marts. When liquids are hot they can burn the lips and inside surface of the mouth. If cooled quickly with such as ice cubes, then they will be cold too soon; if allowed to cool slowly in the cup with some sort of lid, it will be too long before the liquid is drinkable. This is especially apparent when traveling. Therefore I have invented the HOT DRINK CUP LID WITH COOLING AIR-FLOW, which allows air to pass over the hot liquid as it is sipped and thus reducing the temperature of the liquid passing through the drinking opening but not prematurely lowering the temperature of the body of liquid remaining in the cup. This allows the enjoyment of a hot liquid for a longer period of time and increases the safety of drinking hot liquids from a cup with a lid such as the disposable cups and lids offered at fast food restaurants, carry-outs, service mini-marts, and other establishments.

BRIEF DESCRIPTION OF SEVERAL VIEW OF THE DRAWING

Figure 1: Perspective

Figure 2: Side View

Figure 3: Top View

Figure 4: Cross Section A-A Through Center of Lid

Figure 5: Diagrammatic of Cooling Action

DETAILED DESCRIPTION OF THE INVENTION

In accordance with the invention, I describe the HOT DRINK CUP LID WITH COOLING AIR-FLOW invention, which provides a lid **1**, in Figure #1, with cooling air-flow hole **8** for use on beverage containers, such as a drinking cup **14**. Specifically the lid **1** has a raised central area **4** with a drinking area **5** and drinking hole **6** located on one side of the drinking area **5**. Further, there is an angular raised portion **15** raising away from the drinking hole **6**; and the adjacent angular recessed portion **16** which angles down and away from the drinking hole **6**. Further, centrally located on the angular recessed portion **16** is the cooling air-flow hole **8**. The cooling air-flow hole **8** is located on the same radius as the drinking hole **6**, and in a plane slightly lower than the plane of the drinking hole **6**. The cooling air is drawn through the cooling air-flow hole **8** and into the open space above the hot liquid/beverage **17** and up through

the drinking hole **6**, traveling with the hot liquid/beverage **17** out of the drinking hole **6**, thus cooling the hot liquid/beverage **17** as the liquid/beverage **17** is being consumed.

The prototype of the lid **1** embodied a raised circular area **4** on which a drinking hole **6** is placed in drinking area **5**; other forms of embodiment where a raised drinking area is present would be covered by this invention. The prototype of the lid **1** incorporates the raised drinking area **5**, the drinking hole **6**, the recessed cooling air-flow hole **8**, and the angular members **9**, **15**, **16** resulting in a cooling effect of hot liquid/beverages **17** at the exit of the drinking hole **6** yet retaining the interior heat within the cup **14**. The cooling air-flow hole **8** is located above the rim of the cup **14** and below the drinking hole **6**. The optimum position of the cooling air-flow hole **8** is apparent in figure 4 (cross-sectional view).

No know invention or device of prior art utilizes a cooling air-flow hole **8** arrangement of embodiment so as to pass cooling air over hot liquid/beverages **17** as the cup **14** is tilted in at normal drinking angle and the hot liquid/beverage **17** is drawn out through the drinking hole **6**, Figure 5.

CLAIMS

Accordingly, the scope of this invention is defined in the following claims and their legal equivalent and not restricted by the uses defined in this application.

What is claimed as my invention is:

1. A lid for a container, comprising of,

a uniquely designed and developed formed unit which when snugly mounted on an associated mating container, acts as a cooling device by drawing air into the container and over the hot liquid as it is sipped (drawn) through the lid's drinking hole,

a mounting portion for engaging with an associated container to form a snug fit,

a depressed channel that traverses the lid in a circular manner inside the diameter of the container,

a raised portion forming a drinking area,

a drinking hole at the top of the drinking area,

an angular raised portion adjacent to the drinking hole area on the side of the drinking area containing the drinking hole,

an angular recessed portion with its' deepest position along the side on which the drinking hole is located,

a cooling air-flow hole in the angular recessed portion and in line along the radius on which the drinking hole is located,

a gradually raised portion leading away from and opposite to the drinking hole and cooling air-flow hole,

a portion returning to a plane at or below the drinking area plane,

a portion returning to the plane of the depressed channel, and said HOT DRINK CUP LID WITH COOLING AIR-FLOW being designed for ease in use and economically viable for manufacture and marketing.

2. The lid of claim 1 where in a portion is arranged to mount and seat securely along the rim of an associated container.
3. The lid of claim 1 where in a portion is arranged to raise up to form a sipping or drinking area with a hole for same.
4. The lid of claim 1 where in a portion is arranged to form an angular raised member and an angular recessed member adjacent to the drinking hole area and forming the backside of the drinking hole area.
5. The lid of claim 1 where in a portion is arranged with a cooling air-flow hole, in line with the drinking hole and located on the angular recessed portion of the area in line with the drinking hole.
6. The lid of claim 1 where in a portion is arranged to extend away from the base of the angular recessed member and the cooling air-flow hole and extend to the opposite side of the lid.

ABSTRACT OF THE DISCLOSURE

~~This invention entitled~~ the "HOT DRINK CUP LID WITH COOLING AIR-FLOW" is an article of manufacture with a uniquely designed form arranged so that the hot liquid is cooled as it is sipped. ~~This unique invention affords greater convenience, comfort, and ease-of-use when drinking hot liquids. The HOT DRINK CUP LID WITH COOLING AIR-FLOW has a mounting portion for engaging with an associated container. The lid has a depressed channel that traverse around the container inside of the mounting rim. The cup lid has a raised portion containing an opening that is located at the top of the drinking area plane. Further along the radius line and on which the drinking hole is located, the cup lid has a portion that rises up and then dips down slightly below the plane of the drinking hole area and contains another opening placed and designed to funnel the cooling air-flow into the cup. The cup lid has a portion that then rises up at an angle that directs and encourages proper air flow. The cup lid has a wall portion that circumscribes the central part of the lid and help to direct the cooling air-flow down through the air-flow hole. The cup lid has a portion, which drops down to the depressed channel, and another portion rises up and over the lip edge, the mounting portion for engaging with an associated container. No vent holes are required~~. The ~~lid~~ unique design, placement of the drinking hole and ~~placement of the~~ cooling air-flow hole create a structure whereby hot liquid can be cooled and sipped in a manner that reduces the temperature of the hot liquid as it transfers from the cup to the user. This cooling affect is activated by the suction caused by the action of the user sipping at the drinking hole and concurrently drawing air from outside of the cup down through the air-flow hole and up through the

drinking hole along with the hot liquid. The hot liquid is cooled as the air is drawn up in conjunction with the hot liquid through the drinking hole.

DRAWINGS

Figure 1 -- HOT DRINK CUP LID WITH COOLING AIR-FLOW (perspective)

Legend

1. lid
2. mounting portion which mates with the associated container
3. recessed channel
4. raised portion
5. drinking area plane
6. drinking hole
7. recessed portion
8. cooling air-flow hole
9. angled portion
11. raised portion opposite the drinking hole
15. angular raised portion
16. angular recessed portion

Figure 2 - Side View

Legend

1. lid
2. mounting portion which mates with the associated container
3. recessed channel
4. raised portion
5. drinking area plane
6. drinking hole
7. recessed portion
8. cooling air-flow hole

9. angled portion
15. angular raised portion
16. angular recessed portion

Figure 3 -- Top View

Legend

1. lid
2. mounting portion which mates with the associated container
3. recessed channel
5. drinking area plane
6. drinking hole
8. cooling air-flow hole
9. angled portion
15. angular raised portion
16. angular recessed portion

Figure 4 -- Sectional View

Legend

1. lid
2. mounting portion which mates with the associated container
3. recessed channel
4. raised portion
5. drinking area plane
6. drinking hole
7. recessed portion
8. cooling air-flow hole
9. angled portion
11. raised portion opposite the drinking hole
15. angular raised portion

16. angular recessed portion

Figure 5 -- Diagrammatic View of Lid in Use.

1. lid
6. drinking hole
8. cooling air-flow hole
13. action path of air and liquid flow
14. cup
17. hot liquid/beverage

FIG. 1/5

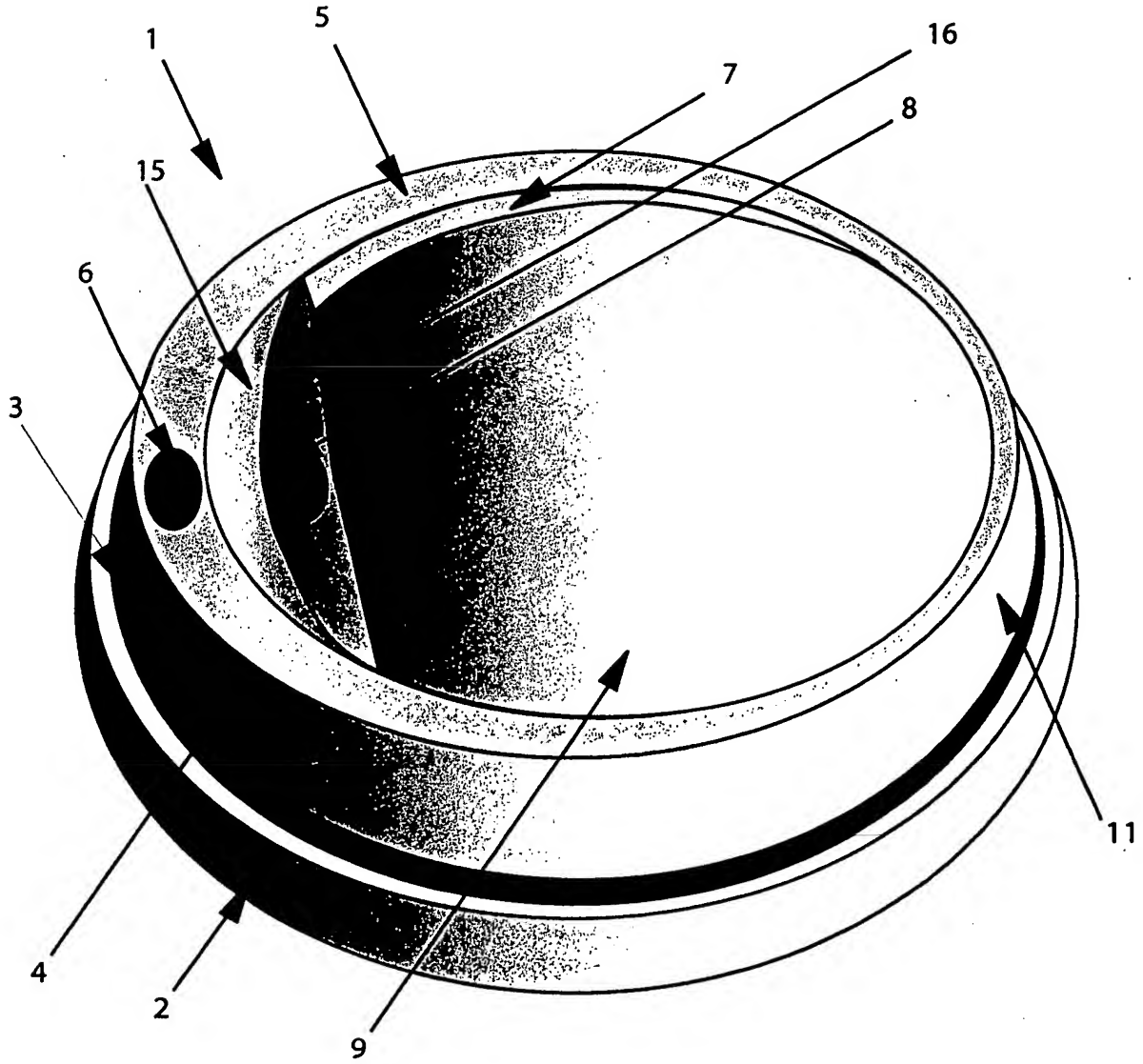


FIG. 2/5

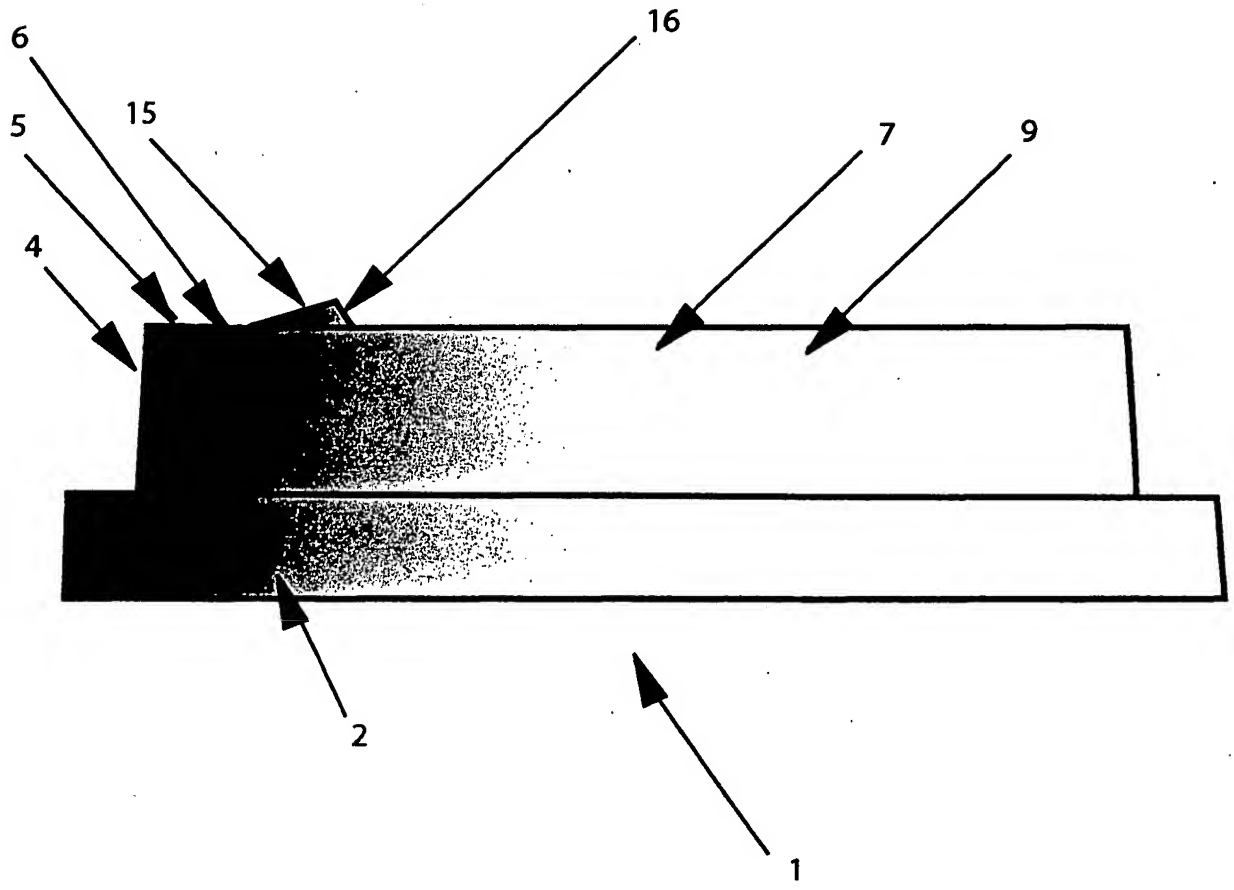


FIG. 3/5

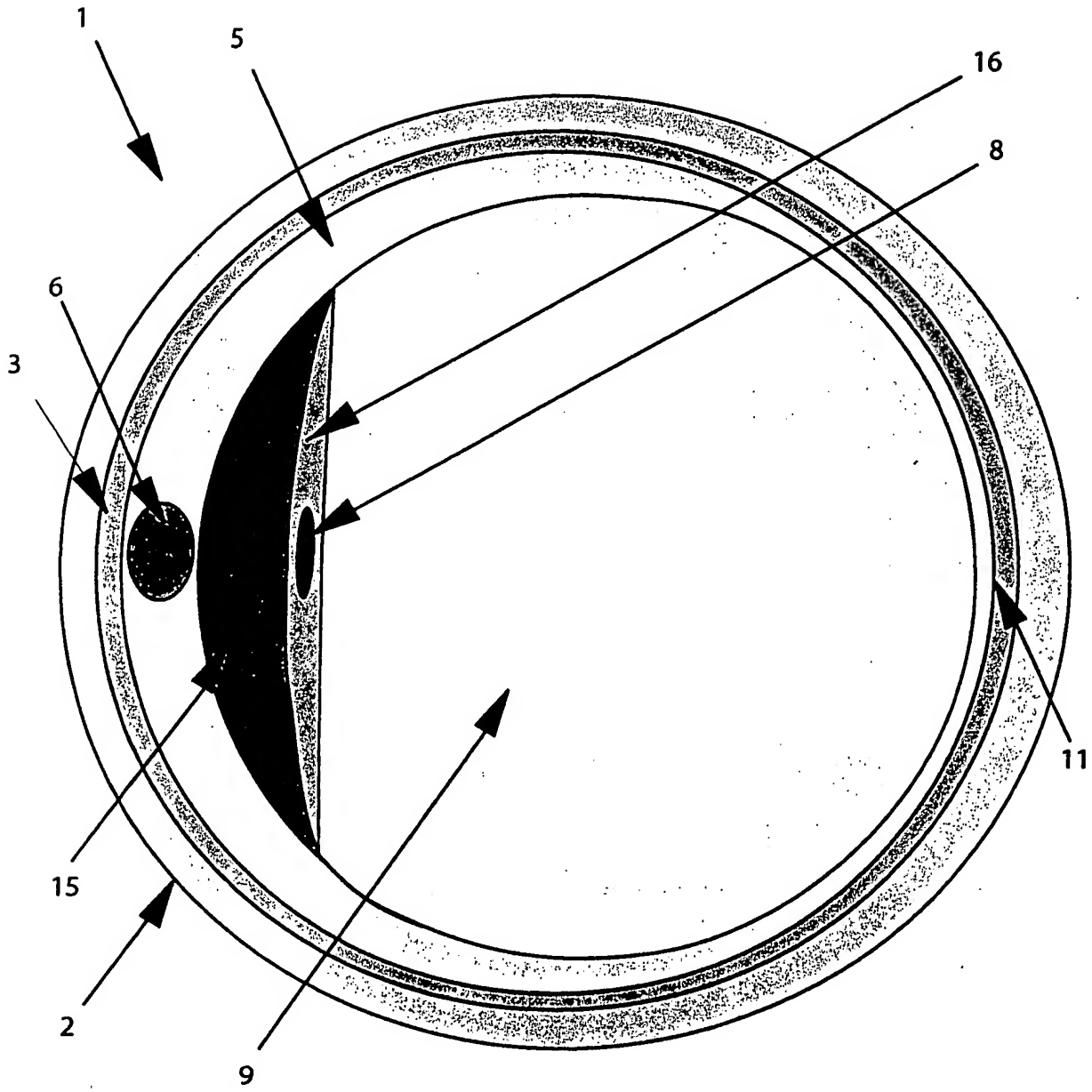
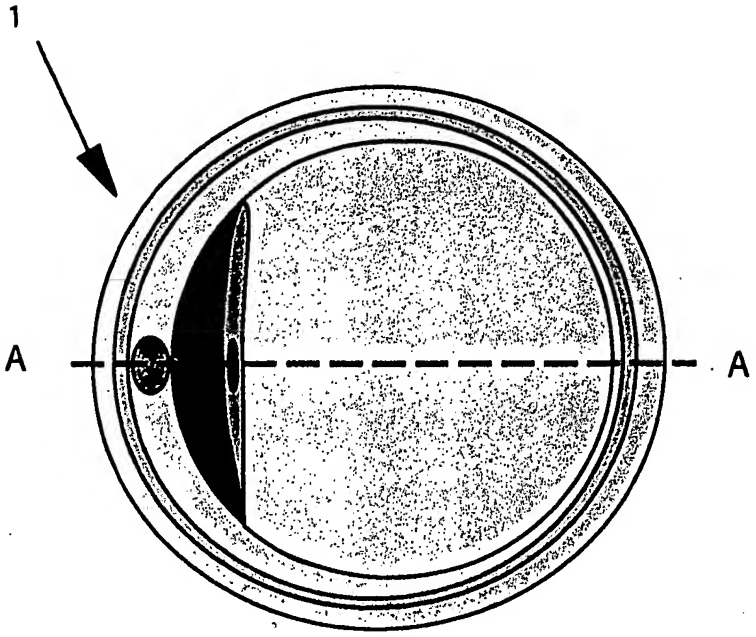
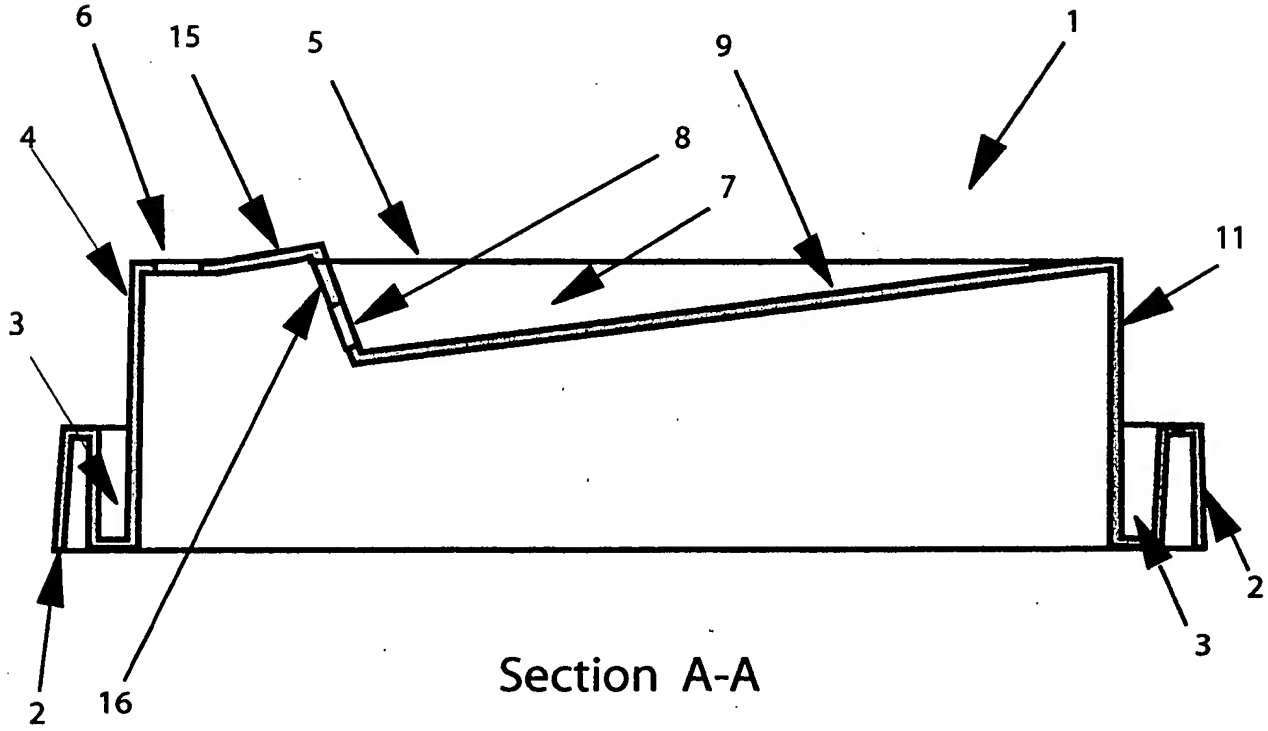


FIG. 4/5





Section A-A

FIG. 5/5